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10/689,645	10/22/2003	Satoshi Ogata	61282-041	4037

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EXAMINER	
PAUL, DISLER	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/689,645	OGATA, SATOSHI	
	Examiner	Art Unit	
	Disler Paul	2615	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-25 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-25 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date 10/22/03 and 6/9/06.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-5, 8-9; 12-16; 20-24 are rejected under 35 U.S.C. 102(e) as being unpatentable over Chrysanthakopoulos ("7,113,610 B1") and further in view of Kaji ("US 7,027,600 B1").

Re claim 1, Chrysanthakopoulos disclosed An audio information transforming method applied to a video/audio format in which a screen includes a plurality of objects and each object has video information, position information, and audio information ("*fig.1-6; objects with sound, image and vector locations*"), said method comprising the steps of: virtual listening point setting of setting a virtual listening point at a position different from a basic listening point that is set as a position at which a listener listens to an audio ("*col.3 line 1-15; fig.4(VS,VSs), col.7 line 60-68*"); and audio frequency transforming of executing an audio frequency transformation to add a

Doppler effect to the audio information at the virtual listening point ("*col.9 line 60 up to col.10 line 12; fig.5-6*").

While, Chrysanthakopoulos disclose of the above, Chrysanthakopoulos fail to disclosed of the further limitation of the relative velocity calculating of calculating relative velocity between the virtual listening point and the object and executing the audio frequency transformation based on the relative velocity. However, Kaji et al. disclose of a virtual system of three-dimensional space wherein the further limitation of the relative velocity calculating of calculating relative velocity between the virtual listening point and the object and executing the audio frequency transformation based on the relative velocity ("*col.5 line 5-10; fig.21-22;col.12 line 30-42* ") for the purpose of performing audio simulation by structuring a sound field spaced by combining spatial objects. Thus, taking the combined teaching of Chrysanthakopoulos and Kaji et al. as a whole, it would have been obvious for one of the ordinary skill in the art to modify Chrysanthakopoulos by incorporating the teaching of the relative velocity calculating of calculating relative velocity between the virtual listening point and the object and executing the audio frequency transformation based on the relative velocity for the purpose of performing audio simulation by structuring a sound field spaced by combining spatial objects.

Re claim 2, the audio information transforming method according to claim 1, wherein the relative velocity calculating step calculates the relative velocity between the virtual listening point and the object by calculating velocity information of the object based on position information of the object before and after a predetermined time has lapsed ("*Kaji;col.13 line 1-55; fig.24-25*").

Re claim 3, the audio information transforming method according to claim 1, wherein the relative velocity calculating step calculates the relative velocity by extracting velocity information of the object and then comparing the position information and the velocity information of the object and position information of the virtual listening point ("*Kaji,fig.21-22*").

Re claims 4, the audio information transforming method according to claim 1, wherein the relative velocity calculating step calculates the relative velocity between the virtual listening point and the object by calculating velocity information of the virtual listening point based on position information of the virtual listening point before and after a predetermined time has lapsed ("*Kaji;col.13 line 1-55; fig.24-25*").

Re claim 5, the audio information transforming method according to claim 1, wherein the relative velocity calculating step calculates the relative velocity by extracting velocity information of the

virtual listening point and then comparing position information and the velocity information of the virtual listening point and the position information of the object ("*see, fig.21-22 wt/ {P2,V2} virtual object info and positional and velocity as compared to source object info*").

Re claim 8, the audio information transforming method according to claim 1, wherein, in respect to a final image unit, the audio frequency transforming step is executed by adding the Doppler effect to the audio information at the virtual listening point by using a formula by which the audio frequency transformation of the audio information at the virtual listening point prior to the final image by one image unit is executed ("*Kaji,col.12 eq.(7)*").

Re claim 9, the audio information transforming method according to claim 1, wherein the video/audio format includes the scenes per games ("kaji,col.7 line 10-16") however, the combined teaching of Chrysanthakopoulos and Kaji et al. as a whole, fail to disclose of the further limitation of the reduced scale information of the screen every scene. However, official notice is taken that such limitation of reducing the scale information of the screen every scene is commonly known in the art, thus it would have been obvious for one of the ordinary skill in the art to have modified Chrysanthakopoulos and Kaji et al. as a whole, by incorporating the limitation of reducing the

scale information of the screen every scene for purpose of providing a visual special effect during the games play.

Re claims 20 has been analyzed and rejected with respect to claim 9.

Re claims 12-16 have been analyzed and rejected with respect to claim 1-5 respectively.

Re claim 21 has been analyzed and rejected with respect to claim 1.

Re claim 22, the audio information transforming device according to claim 21, wherein the relative velocity calculating section calculates the relative velocity by comparing position information of the virtual listening point and the position information of the object ("*fig.21-22(P1,P2)*") and the position information of the virtual listening point and the position information of the object after a predetermined time has lapsed ("*see claims 2 and fig.24-25; col.13 with moving comparison*").

Re claim 23, the audio information transforming device according to claim 21, wherein the relative velocity calculating section calculates the relative velocity by comparing the position information and velocity information of the object-and the position information of the virtual listening point (fig.21-22).

Re claim 24, the audio information transforming device according to claim 21, wherein the relative velocity calculating section calculates the relative velocity by comparing the position information of the object and the position information and velocity information of the virtual listening point ("fig.21-22").

3. Claims 10-11 are rejected under 35 U.S.C. 102(e) as being unpatentable over Chrysanthakopoulos ("7,113,610 B1") and ("US 7,027,600 B1") and further in view of Chi ("2003/0044026 A1).

Re claim 11, the method set forth in any one of claims 1, However, the combine teaching of Chrysanthakopoulos and Kaji et al. as a whole, is silent in regard to the encoder for encoding at least one of. However, Kaji et al. did disclose of the velocity information of an object, which is one of objects included in a screen ("*fig.21-22*"), thus it is inherent with the above disclosure there must exist of such encoder for formatting these information into appropriate code. While, the combined teaching of Chrysanthakopoulos and Kaji et al. as a whole, disclose of the above information, they fail to disclose of the further limitation wherein the velocity information and direction information of a scene. However, Chi disclose of system wherein the further limitation wherein the velocity information and direction information of a scene ("*page 1[0006];fig.2-3; page 2[0035]/wth*

comparing velocities difference between background and virtual listening source; frequencies effect is changed") for the purpose of removing the interference of background. Thus, taking the combined teaching of Chrysanthakopoulos and Kaji et al. and Chi as a whole, it would have been obvious for one of the ordinary skill in the art to modify Chrysanthakopoulos and Kaji et al. as a whole, by incorporating the further limitation wherein the velocity information and direction information of a scene for the purpose of removing the interference of background and reduced scale information of the screen every scene ("see claims 9 rejection").

Re claim 10 has been analyzed and rejected with respect to claim 11.

4. Claims 7 is rejected under 35 U.S.C. 102(e) as being unpatentable over Chrysanthakopoulos ("7,113,610 B1") and Kaji ("US 7,027,600 B1") and further in view of cooklev ("6,633,617 B1").

Re claim 7, the audio information transforming method according to claim 1, wherein, when the audio information including the Doppler effect previously is included in the object ("*see col.12 and fig.21-22*"), However, the combined teaching of Chrysanthakopoulos and Kaji et al. as a whole, fail to disclose of the further limitation of wherein the audio frequency transforming step executes an audio frequency

transformation to cancel the Doppler effect included in the audio information of the object. However, cooklev disclosed of a system with the Doppler shift compensation wherein the audio frequency transforming step executes an audio frequency transformation to cancel the Doppler effect included in the audio information of the object ("*fig.2-3; col.13 line 10-20/Doppler shift may be cancel or inserted*") for the purpose of improving quality in communication. Thus, taking the combined teaching of Chrysanthakopoulos and Kaji et al. and now cooklev as a whole, it would have been obvious for one of the ordinary skill in the art to modify Chrysanthakopoulos and Kaji et al. as a whole, by incorporating the limitation wherein the audio frequency transforming step executes an audio frequency transformation to cancel the Doppler effect included in the audio information of the object for the purpose of improving quality in communication.

The combined teaching of Chrysanthakopoulos and Kaji et al. and cooklev as a whole, further teach of the executing the audio frequency transformation based on the relative velocity to add the Doppler effect to the audio information of the virtual listening point ("*see claims 1, fig.21-22*").

5. Claims 6; 17;19; 25 are rejected under 35 U.S.C. 102(e) as being unpatentable over Chrysanthakopoulos ("7,113,610 B1") and Chi ("2003/0044026 A1).

Re claim 6, Chrysanthakopoulos disclosed an audio information transforming method applied to a video/audio format in which each scene that is replayed on a screen has video information and audio information ("*fig.1-6; objects with sound, image and vector locations*"), said method comprising the steps of: virtual listening point setting step of setting a virtual listening point at a position different from -a basic listening point that is set as a position at which a listener listens to an audio ("*col.3 line 1-15; fig.4(VS,VSs), col.7 line 60-68*"); and audio frequency transforming step of transforming an audio frequency to add a Doppler effect to the audio information at the virtual listening point("*col.9 line 60 up to col.10 line 12; fig.5-6*").

While Chrysanthakopoulos disclose of the above, Chrysanthakopoulos fail to disclose of the further limitation wherein the scene has velocity information and direction information based on which a background is moved and the relative velocity calculating step of calculating a relative velocity between the virtual listening point and a background based on the velocity information and the direction information of the background base on which to add Doppler effect. However, Chi disclose a processing method of a system for removing interference wherein further limitation wherein the scene has velocity information and direction information based on which a background is

moved and the relative velocity calculating step of calculating a relative velocity between the virtual listening point and a background based on the velocity information and the direction information of the background based on which to add Doppler effect("*page 1[0006];fig.2-3; page 2[0035]/wth comparing velocities difference between background and virtual listening source; frequencies effect is changed*") for the purpose of removing the interference of background. Thus, taking the combined teaching of Chrysanthakopoulos and Chi as a whole, it would have been obvious for one of the ordinary skill in the art to modify Chrysanthakopoulos by incorporating the further limitation wherein the scene has velocity information and direction information based on which a background is moved and the relative velocity calculating step of calculating a relative velocity between the virtual listening point and a background based on the velocity information and the direction information of the background for the purpose of removing the interference of background.

Re claims 17,25 have been analyzed and rejected with respect to claim 6.

Re claim 19, the audio information transforming program according to any one of claims 17, wherein, when audio information transformation at a time of final image unit is executed, said program product further comprising a procedure of: adding the Doppler effect

to the audio information at the virtual listening point by using a formula, said formula for executing the audio frequency transformation of the audio information at the virtual listening point prior to the final image by one image unit ("*see claim 8 rejections*").

6. Claims 18 is rejected under 35 U.S.C. 102(e) as being unpatentable over Chrysanthakopoulos ("7,113,610 B1") and Chi ("2003/0044026 A1) and further in view of cooklev ("6,633,617 B1").

Re claim 18, the audio information transforming method according to claim 17, wherein, when the audio information including the Doppler effect previously is included in the object ("*see col.12 and fig.21-22*"), However, the teaching of Chrysanthakopoulos and chi et al. as a whole, fail to disclose of the further limitation of wherein the audio frequency transforming step executes an audio frequency transformation to cancel the Doppler effect included in the audio information of the object. However, cooklev disclosed of a system with the Doppler shift compensation wherein the audio frequency transforming step executes an audio frequency transformation to cancel the Doppler effect included in the audio information of the object ("*fig.2-3; col.13 line 10-20/Doppler shift may be cancel or inserted*") for the purpose of improving quality in communication. Thus, taking the combined teaching

of Chrysanthakopoulos and chi and now cooklev as a whole, it would have been obvious for one of the ordinary skill in the art to modify Chrysanthakopoulos and chi et al. as a whole, by incorporating the limitation wherein the audio frequency transforming step executes an audio frequency transformation to cancel the Doppler effect included in the audio information of the object for the purpose of improving quality in communication.

The combined teaching of Chrysanthakopoulos and chi et al. and cooklev as a whole, further teach of the executing the audio frequency transformation based on the relative velocity to add the Doppler effect to the audio information of the virtual listening point ("*see claims 1, fig.21-22*").

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Disler Paul whose telephone number is 571-270-1187. The examiner can normally be reached on 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chin Vivian can be reached on 571-272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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